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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,287	02/19/2004	Jei-Fu Shaw	08919-104001 / 09A-911128	4293
69713 7590 05/14/2008 OCCHIUTI ROHLICEK & TSAO, LLP 10 FAWCETT STREET CAMBRIDGE, MA 02138				
EXAMINER KIM, TAEYOUN				
ART UNIT 1651		PAPER NUMBER		
NOTIFICATION DATE 05/14/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

INFO@ORTPATENT.COM

Office Action Summary

Application No.

10/782,287

Applicant(s)

SHAW ET AL.

Examiner

Taeyoon Kim

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-16, 18-20 and 31-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-16, 18-20 and 31-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 14-16, 18-20 and 31-44 are pending.

Response to Amendment

Applicant's amendment and response filed on 2/1/2008 has been received and entered into the case.

Claims 1-13, 17, 21-30 have been canceled, claims 37-44 are newly added, and claims 14-16, 18-20 and 31-44 are pending and have been considered on the merits. All arguments have been fully considered.

The objection to the specification has been withdrawn due to the amendment.

The claim rejection under 35 U.S.C. §112, 2nd para., has been withdrawn due to the amendment.

The claim rejection under 35 U.S.C. §103 based on Seidman et al. in view of Iwano et al. has been withdrawn due to the amendment. However, the claims are rejected based on a new ground of rejection (see below).

In the response to the claim rejection under 35 U.S.C. §103 based on Seidman et al. in view of Iwano et al., applicant argued that the references do not teach the limitation of "up to five days" as in the amended claims. It is acknowledged that Iwano et al. do not particularly teach the duration of fermentation up to five days, rather the reference teaches a 30-day fermentation step. This argument is not persuasive because the duration of fermentation to produce fermentation products is routinely modified parameters in the art. Thus, a person of ordinary skill in the art would recognize the duration of fermentation as a result-effective variable. As such, the variables would be

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routinely optimized by one of ordinary skill in the art in practicing the invention disclosed by those references. Accordingly, the claimed invention was prima facie obvious to one of ordinary skill in the art at the time the invention was made especially in the absence of evidence to the contrary.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 14-16, 18-20 and 31-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly amended claim 14 now discloses a new limitation of "up to five days" in line 11. In addition, claims 38, 40, 42 and 44 disclose "for 3 to 5 days". The specification does not have an appropriate support for the limitation, while "three days" or "five days" is disclosed in p.7, and the limitation of "up to five days" or "for 3 to 5 days" is not disclosed in the specification. Therefore, the new limitation introduces a new matter to the current application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-16, 18-20, 31-36, 38, 40, 42 and 44 are rejected under 35 U.S.C.

103(a) as being unpatentable over Seidman et al. (of the record) in view of Iwano et al. (of the record).

Seidman et al. teach a process of liquefying starch derived from rice, tapioca, sorghum, potatoes, etc. (see column 5, lines 6-10) to a soluble hydrolysate using α -amylase at a temperature about 170°F-195°F, which is 76.7°C-90.5°C (see column 2, lines 46-60), and then a saccharification enzyme such as glucoamylase in the second step (see column 2, lines 8-12). Seidman et al. also teach gelatinization of enzyme-containing slurry at the temperature disclosed above (see column 2, lines 54-60). Seidman et al. also teach the removal of insolubles being removed by filtration (see column 13, lines 27-28).

Seidman et al. do not teach the step of fermentation using glucose-rich syrup to produce fermentation product.

Iwano et al. teach a fermentation step to produce fermentation products (rice wine or Japanese sake) using microorganism (entire document).

It would therefore have been obvious for the person of ordinary skill in the art at the time the invention was made to use/try the syrup made by the method of Seidman et al. in the fermentation process taught by Iwano et al.

The skilled artisan would have been motivated to make such a modification because since it is well known in the art that the glucose-rich syrup obtained from the

method of Seidman et al. is sufficient to be used as a substrate for the fermentation process to produce rice wine as taught by Iwano et al. Therefore, a person of ordinary skill in the art would use/try the syrup taught by Seidman et al. in the fermentation of producing rice wine as taught by Iwano et al.

The Supreme Court recently states in *KSR v. Teleflex* (550 US82 USPQ2d 1385, 2007) "The same constricted analysis led the Court of Appeals to conclude, in error, that a patent claim cannot be proved obvious merely by showing that the combination of elements was "obvious to try." *Id.*, at 289 (internal quotation marks omitted). When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under §103." See also M.P.E.P. §2141.

With regard to the limitation of "up to five days" or "for 3 to 5 days", Seidman et al. in view of Iwano et al. do not particularly teach the limitation. It is noted that the duration of fermentation taught by Iwano et al. is 30 days. However, the duration of fermentation would be considered as a result-effective variable. As such, the variables would be routinely optimized by one of ordinary skill in the art in practicing the invention disclosed by those references. Generally, differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration is critical. "[W]here the general conditions of a claim are

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disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.); >see also Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); ** In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the :references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.). For more recent cases applying this principle, see Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997). Accordingly, the claimed invention was prima facie obvious to one of ordinary skill in the art at the time the invention was made especially in the absence of evidence to the contrary.

Therefore, the invention as a whole would have been prima facie obvious to a person of ordinary skill at the time the invention was made.

Claims 14-16, 18-20 and 31-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seidman et al. (of the record) in view of Skory et al. (1997, Biotechnology Letters).

Seidman et al. teach a process of liquefying starch derived from rice, tapioca, sorghum, potatoes, etc. (see column 5, lines 6-10) to a soluble hydrolysate using α -amylase at a temperature about 170°F-195°F, which is 76.7°C-90.5°C (see column 2, lines 46-60), and then a saccharification enzyme such as glucoamylase in the second step (see column 2, lines 8-12). Seidman et al. also teach gelatinization of enzyme-containing slurry at the temperature disclosed above (see column 2, lines 54-60). Seidman et al. also teach the removal of insolubles being removed by filtration (see column 13, lines 27-28).

Seidman et al. do not teach the step of fermentation using glucose-rich syrup to produce fermentation product.

Skory et al. teach a fermentation process using *Aspergillus oryzae* to produce ethanol (fermentation product) (see Table 1), and Skory et al. also show various duration of fermentation including 3-5 days and the yield of ethanol (see Fig.1).

It would therefore have been obvious for the person of ordinary skill in the art at the time the invention was made to try to use *Aspergillus oryzae* to ferment the glucose-rich syrup of Seidman et al. to produce fermentation product because it is well known in the art that *Aspergillus oryzae* is one of commonly used fungi in fermentation.

The Supreme Court recently states in *KSR v. Teleflex* (550 US82 USPQ2d 1385, 2007) "The same constricted analysis led the Court of Appeals to conclude, in error, that

a patent claim cannot be proved obvious merely by showing that the combination of elements was "obvious to try." *Id.*, at 289 (internal quotation marks omitted). When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under §103." See also M.P.E.P. §2141.

With regard to the limitation of "up to five days" or "for 3 to 5 days", Skory et al. teach various duration of fermentation and the yield of ethanol (see Fig. 1). Skory et al. tested the yield of ethanol by fermentation with *Aspergillus oryzae* and other strains of fungi at various durations (e.g. 0, 3, 5, 7 and 10 days; see Fig. 1), and compared the yield to identify optimal condition. For example, the reference particularly shows that the yield of ethanol accumulation reaches almost maximum level after 3 days in fermentation of oat-spelt xylan with *Aspergillus oryzae* (see Fig. 1 B).

Therefore, it would have been obvious to a person of ordinary skill in the art to try various durations of fermentation, including the duration claimed in the current invention, to measure the amount of ethanol obtainable by fermenting glucose-rich syrup of Seidman et al. with *Aspergillus oryzae* as taught by Skory et al.

Therefore, the invention as a whole would have been *prima facie* obvious to a person of ordinary skill at the time the invention was made.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taeyoon Kim whose telephone number is (571)272-9041. The examiner can normally be reached on 8:00 am - 4:00 pm ET (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Leon B Lankford Jr/
Primary Examiner, Art Unit 1651

Taeyoon Kim
AU-1651